

Dr. Bancroft.—Diseases of Animals and Plants, Brisbane, 1879.

From Melbourne University.—Calendar for 1879-80.

From Mr. C. Pickering.—Chronological History of Plants, by C. Pickering, M.D.

Report of the Salmon Commission, Tasmania.

From Professor Liversidge.—International Congress of Geologists at Paris, 1878.

From Professor Owen.—On the Extinct Animals of the Colonies of Great Britain.

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PAPERS READ.

NOTES ON THE ABERCROMBIE CAVES.

BY C. S. WILKINSON, L.S., F.G.S., GOVERNMENT GEOLOGIST.

I desire to lay before you a brief description of the Abercrombie Caves, and of the geological features of the country in their vicinity.

These caves are situated on the Grove Creek, about 40 miles in a southerly direction from Bathurst, and 8 miles from the gold mining township of Arthur or Trunkey.

The Grove Creek takes its rise in the Dividing Range which forms the watershed between the Macquarie River and the Abercrombie River, and flows almost due south for a distance of 18 miles to Thompson's Creek, which in about two miles further joins the Abercrombie River. Its valley gradually deepens until it reaches that of Thompson's Creek, where it is about 100 feet deep. The Caves occur two and a-half miles from Thompson's Creek, at a point where a mass of marble limestone, about 200 yards wide, stretches like a huge dam across the valley. Through this barrier of limestone the Grove Creek has by the solvent action of its water, aided by the sand and gravel swept along during floods, eroded a large passage or archway, similar to the

Easter Cavern and Grand Archway of the Binda or Fish River Caves. This natural tunnel is about 200 yards in length, 20 to 60 yards wide, and 50 feet high. Its interior is ornamented with numerous stalactites and stalagmites of most grotesque and fanciful forms—from projecting ledges the pendant stalactites resemble cascades, others hang in folds like curtains, while below the fluted stalagmites rise to meet them. The vaulted and craggy roof of the cavern is colored in places with light tints of pink and green, mottled with white, caused by some minute fungoid or other vegetable growth, producing a very pleasing effect; and the beauty of the whole scene is still further enhanced by the admission of daylight from the upper and lower entrances of the archway; and about these entrances, and even within them, may be seen different varieties of ferns, some sheltered in crevices in rocks, and others clinging to the moist walls or hanging gracefully from broken ledges of the white marble limestone. Through this decorated and beautiful natural arch the Grove Creek flows over a gravelly bed, leaving here and there a quiet pool of clear water; but the debris of drift timber left upon the craggy walls, shows that a great volume of water must at times flow through the tunnel. The gravel contains a little gold, but not in sufficient quantity to pay for its extraction. The limestone is full of corals encrinites &c., and is interbedded with Silurian shales and sandstones, which compose the high and rugged ranges rising steeply on both sides of the creek, and in which occur numerous quartz reefs, some of which have been worked for gold. The limestone has become so crystalline in structure as almost to obliterate all traces of the fossils; but when polished (and it takes a high polish) these may be plainly seen. It occurs, as it does in many other parts of this Colony, in irregular lenticular masses which, in places, are several hundred yards in thickness, and then in a short distance they suddenly thin out: these are no doubt the remains of coral reefs which once grew in the Silurian ocean, but are now some 2,000 to 3,000 feet above the sea level.

From the large Arch or Tunnel, several smaller caverns branch off, which I had not time to examine closely. One of these is entered from the east side and near the upper entrance to the Archway: after a few yards it divides into several passages which a little further in are found filled up with red earth containing fragments and logs of wood. But this red earth is perforated in all directions with the burrows made by wombats. These animals still inhabit this cave, but by what way they enter it is not known; for it is impossible that they could climb the rocks or enter by the passage we did, so that they must have some entrance from the side of the valley, which it would be important to discover. I have no doubt that some fossil bones might be found in this red earth deposit, which I purpose shortly to examine. There is a small but interesting stalagmite in this cave; it stands in three tiers with fluted sides.

We can only arrive at the geological age of these caves from a consideration of the formation of the physical features of the surrounding country. To quote from my former notes on this district, the general geological features of this country consists of Silurian shales, sandstones, conglomerates, and limestones, with occasional intrusive masses of greenstone trap, and at Mulgunnia the estate of Mr. Warden T. Smith, P.M., near the Grove Creek, there is a small outcrop of granite, covering these rocks are patches of pliocene tertiary rounded quartz pebble drift, overlaid by basalt. These patches of drift are the remnants of the beds of those ancient watercourses, which in Pliocene times drained the surface of this country. Streams of lava from volcanoes now extinct, flowed into the old valleys, burying the water-channels, subsequently long continued denudation eroded fresh channels through these rocks, deepened the valleys, and thus gradually formed the present physical features.

Now the bed of Grove Creek is several hundred feet below the level of the old Pliocene channel; so that we may form some conception of the enormous time, that must have elapsed since

the Pliocene channel was cut through, for the valley to have been eroded several hundred feet deeper, and this before the drainage water began to pierce the bed of limestone in which the caves are. There can therefore be no doubt that these caves were formed subsequently to the Pliocene period, and towards the close of the Pleistocene period.

They were discovered about 35 years ago, by the late Surveyor General Davidson, when he was engaged upon the survey of the Grove Creek; and were visited a few days afterwards by the late Mr. W. C. Wentworth, and then by Governor Fitzroy. No doubt in the future they will be resorted to by many tourists.

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NOTES AND EXHIBITS.

Note on *Scomber antarcticus*, by William Macleay. F.L.S., &c.—The Mackerel has been rather abundant lately in the Harbour, and I am informed that, about a fortnight ago, the sea outside the Heads was literally alive with them. They were apparently young fish, and all seemed to be migrating in a northerly direction. It is much to be desired that Fishermen and others who have the opportunity of observing the movements of these and other useful fishes, should make notes of the date of such appearances, and communicate the same to me or some member of this Society, as it is only by a combination of observations that a knowledge of the habits of fishes can be ascertained with certainty.

J. Brazier Esq., C.M.Z.S., exhibited the typical *Voluta Angasi*, of Lamarck, obtained by Mr. W. T. Bednall, at Port Lincoln, South Australia. The variety *Voluta Angasi*, (Sowerby) procured by Rev. H. D. Atkinson at Circular Head and Barren Island, Bass's Straits, also the variety *V. Kingi*, (Cox), obtained by Mr. A. Simson at Barren Island.

Mr. J. Hobson exhibited a number of entomological specimens in spirits from the Solomon Islands.

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